

## RIVER STAGES AND FLOODS

By BENNETT SWENSON

Floods during June were largely local and confined mainly to smaller streams, due to the local, showery type of precipitation that occurred. Nebraska was the most affected, with two such floods; the first occurred in the northeastern part of the state early in June, followed by another, a few days later, in the western portion.

*Atlantic slope drainage.*—A slight rise occurred in the James and Roanoke Rivers as the result of heavy rains the last 2 days of May. Slight overflows occurred in low places along the rivers but no damage of consequence was reported.

*Upper Mississippi Basin.*—Heavy showers in central Wisconsin during the first and third weeks of June resulted in two rises in some of the streams in that state. The Chippewa River rose to within 0.2 foot of flood stage at Durand, Wis., on June 10. In the Wisconsin River, flood stage was exceeded at Knowlton, Wis., on the 9th and 25th and at Portage, Wis., on the 29th. The stages were not extremely high and damage was only slight.

A local flood occurred in the Maquaketa River in connection with a rainfall of 5.10 inches at Delaware, Iowa, on June 24. A river stage of 18.3 feet was reached at that place.

*Ohio Basin.*—Severe thunderstorms, on June 10th and June 18, centered mainly over Cattaraugus County, N. Y., resulted in local flooding in the smaller streams. Property loss to roads and bridges and crop loss estimated at \$200,000 resulted.

*Missouri Basin.*—On June 4 and 5 excessively heavy rains in northeast Nebraska caused disastrous floods in small streams in that section of the state. Heavy damage resulted in Burt, Cuming, Dixon, Dakota, Madison, Stanton, and Thurston Counties, with the greatest damage in the towns of Homer, Pender, and Winnebago. About 5 lives were lost and property damage has been estimated at \$1,816,000.

The area in which the heavy rain occurred is hilly so that the run-off was rapid. The run-off was sufficiently large to cause flood conditions also in some of the larger streams such as Logan Creek and Elkhorn River.

Western Nebraska experienced a somewhat similar flood from heavy rains on June 6 and 7. Medicine Creek reached a stage within 3 feet of the 1935 high level. The high water from Frenchman Creek and other creeks flowing into the Republican River, in addition to Medicine Creek, resulted in only slight flooding in the main channel of the Republican. The stage reached at Guide Rock, Nebr., was 9.1 feet on the 10th, 0.1 foot above flood stage. The damage reported was only slight.

A heavy rainstorm was centered in Leavenworth County, Kansas, on June 20 when 9.05 inches of rain was measured at Tonganoxie between midnight and noon. The run-off and discharge accounted for a 24-hour rise of 3.8 feet to a stage of 7.3 feet, in the Kansas River at Lecompton, Kans., and for a stage of 13.2 feet, highest for the month, in the Missouri River at Kansas City on the same date.

*Arkansas Basin.*—On the 8th and 9th flooding occurred in Kansas in the Pawnee River and some of the nearby small streams, principally in Pawnee and Edwards Counties. The Arkansas River reached flood stage at Great Bend, Kans., from this run-off. The total damage in Pawnee and Edwards Counties has been estimated at \$65,000.

The North Canadian River was slightly above flood stage from June 11 to 22. A monetary loss of \$17,000 has been estimated.

*Red Basin.*—Slight flooding occurred in the Sulphur River in Texas from June 15 to 25 but little or no damage resulted.

*West Gulf of Mexico drainage.*—The upper Trinity River experienced above flood stages during the month. Most of the damage, estimated at \$12,000, was centered at or near Dallas, Tex., where a stage of 34 feet was reached on June 16th.

The Rio Grande reached and exceeded flood stage at Mercedes and Brownsville, Tex., but no water left the main channel anywhere on the American side of the river where damage would result.

TABLE OF ESTIMATED FLOOD LOSSES, JUNE 1940

River and drainage	Tangible property	Matured crops	Prospective crops	Live-stock and other movable farm property	Suspension of business	Total
Mississippi system, Missouri Basin, rivers in northeastern Nebraska.....	\$743,000	\$105,000	\$850,000	\$105,000	\$13,000	\$1,816,000
Floyd River.....	12,000					12,000
Kansas River.....	13,650		17,500			31,150
Allegheny River.....	200,000					200,000
Arkansas River.....	20,000		45,000			65,000
North Canadian River.....	10,000	4,500	2,000		500	17,000
Trinity River.....	12,000					12,000

<sup>1</sup> Cattaraugus County, N. Y.

## FLOOD-STAGE REPORT FOR JUNE 1940

[All dates in June unless otherwise specified]

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
ATLANTIC SLOPE DRAINAGE					
James:	Feet			Feet	
Bremo Bluff, Va.....	19	1	2	21.95	1
Columbia, Va.....	10	May 31	4	21.8	2
State Farm, Va.....	12	1	2	13.5	2
Richmond, Va.....	8	2	2	8.7	1
Roanoke:					
Randolph, Va.....	21	1	2	23.3	2
Weldon, N. C.....	31	2	3	33.8	2
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Wisconsin:					
Knowlton, Wis.....	12	{ 8	11	16.2	9
		24	26	15.8	25
Portage, Wis.....	17	27	30	18.3	29
Meramec: Sullivan, Mo.....	11	29	29	11.2	29
Mississippi: Louisiana, Mo. <sup>1</sup>	12	{ 18	21	12.1	21
		26	29	12.1	27-28
Missouri Basin					
Floyd: James, Iowa.....	14	4	5	15.4	5
Republican: Guide Rock, Nebr.....	9	10	10	9.1	10
Arkansas Basin					
North Canadian:					
Woodward, Okla.....	5	11	11	5.2	11
Canton, Okla.....	8	11	12	9.0	12
		2	5	9.4	3
Yukon, Okla.....	8	{ 8	23	11.9	14
		28	28	8.1	28
Red Basin					
Little: Whitecliffs, Ark.....	25	May 31	1	25.3	1
Sulphur:					
Ringo Crossing, Tex.....	20	{ (2) 15	2	24.3	16
		30	(3) 7	26.2	2
Naples, Tex.....	22	{ (2) 20	25	25.0	22
WEST GULF OF MEXICO DRAINAGE					
Trinity:					
Dallas, Tex.....	28	{ 11	11	28.1	11
		15	19	34.0	16
Trinidad, Tex.....	26	21	27	32.3	25
Liberty, Tex.....	24	12	12	25.5	12
Guadalupe: Gonzales, Tex.....	20	30	(3)		
Rio Grande:					
Mercedes, Tex.....	21	27	28	22.0	28
Brownsville, Tex.....	18	27	28	18.2	28

<sup>1</sup> Above flood stages caused by operations at Dam. No. 24.

<sup>2</sup> Continued from preceding month.

<sup>3</sup> Continued into next month.